

## **Intensity Modulated Radiotherapy Versus Three Dimensional Conformal Plan and Dynamic Conformal Arc for Cranial Lesion in Stereotactic Radiotherapy By Using Novalis-Tx System- A Dosimetric Study**

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A comparison of the different stereotactic radiotherapy technique in cranial lesion. The primary aim of this study was to judge the quality of the treatment plans.

Twenty-one stereotactic radiotherapy patients of different volume were selected for 3DCRT, DCAT and IMRT on Novalis-Tx. Margin taken for planning target volume (PTV) was 1 mm and the prescribed dose was 95% for all plans. The target coverage at the prescription dose, conformity index (CI), and heterogeneity index, minimal and maximal dose to the planning target volume, coverage index were analyzed for all plans.

If tumor size is small ( $PTV \leq 2cc$ ), 3DCRT, DCAT and IMRT plans give approximate values but CI for IMRT plans was high. If tumor size is medium ( $2cc < PTV \leq 50cc$ ), 3DCRT, DCAT and IMRT plans give comparative result with each other. The IMRT plans give higher CI, better target coverage at the prescribed dose, better heterogeneity index and better coverage index. If tumors size is large ( $PTV > 50cc$ ), IMRT plan give good target coverage at the prescribed dose.

For small size tumor 3D-CRT and DCAT is useful as IMRT is not recommended. For medium, especially large size tumor IMRT gives better result as well as good sparing of Organ at risk (OARs).

*Key words: Intensity-modulated radiotherapy (IMRT), Three-dimensional conformal radiotherapy (3D-CRT), Dynamic conformal arc radiotherapy (DCAT), Organ at risk (OAR) 25.4% ESD reduction for exposures to the abdomen.*